

A CLAIMS
~~Patent claims~~

1. A process for the preparation of (metal) salts of
alkylphosphonous acids, which comprises reacting
5 elemental yellow phosphorus with halogen-free
alkylating agents in the presence of at least one
base.
2. A process as claimed in claim 1, wherein the
10 reaction is carried out in a two-phase system
comprising at least one base and an organic
solvent.
3. A process as claimed in claim 1 ~~or 2~~, wherein the
15 alkylating agents are dialkyl sulfates, trialkyl
phosphates, dialkyl carbonates and/or formic acid
ortho-esters.
4. A process as claimed in ~~one or more of claims 1 to~~
20 ~~3~~ ^{claim 1} wherein the organic solvents employed are
straight-chain or branched alkanes, alkyl-
substituted aromatic solvents, water-immiscible or
only partially water-miscible alcohols or ethers,
alone or in combination with one another.

claim 1

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5. A process as claimed in ~~one or more of claims 1 to 4~~, wherein the organic solvent employed is toluene, alone or in combination with alcohols.

claim 1

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6. A process as claimed in ~~one or more of claims 1 to 5~~, wherein the bases are hydroxides, carbonates, bicarbonates, amides, alkoxides and/or amine bases.

claim 1

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7. A process as claimed in ~~one or more of claims 1 to 6~~, wherein the reaction is carried out in the presence of a phase-transfer catalyst.

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8. A process as claimed in claim 7, wherein the phase-transfer catalyst is a tetraalkylphosphonium halide, triphenylalkylphosphonium halide or tetraorganylammonium halide.

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9. A process as claimed in ~~one or more of claims 1 to 8~~, wherein the temperature during the reaction is from -20 to +60°C.

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10. A process as claimed in ~~one or more of claims 1 to 9~~, wherein the temperature is from 0 to 30°C.

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Claim 1

11. A process as claimed in ~~one or more of claims 1 to 10~~, wherein the reaction is carried out at a pressure of from 0 to 10 bar.

Claim 1

12. A process as claimed in ~~one or more of claims 1 to 11~~, wherein the yellow phosphorus is suspended or dissolved in a solvent or solvent mixture and then reacted with a halogen-free alkylating agent and at least one base.

Claim 1

13. A process as claimed in ~~one or more of claims 1 to 12~~, wherein the yellow phosphorus and the halogen-free alkylating agent are reacted in a molar ratio of from 1:1 to 1:3, where the molar ratio of yellow phosphorus to base is from 1:1 to 1:5.

Claim 1

14. A process as claimed in ~~one or more of claims 1 to 13~~, wherein the two-phase system obtained after the reaction is separated and further processed.

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15. The use of a (metal) salt of an alkylphosphonous acid prepared by a process ~~as claimed in claims 1 to 14~~ as a precursor for chemical syntheses.

Claim 1

16. The use of a (metal) salt of an alkylphosphonous acid prepared by a process ~~as claimed in claims 1~~.

A ~~to 14~~ for the preparation of organophosphorus compounds.

5 *A* 17. The use of a (metal) salt of an alkylphosphonous acid prepared by a process ^{Claim 1} ~~as claimed in claims 1 to 14~~ as a flame retardant or for the preparation of flame retardants.

10 *A* 18. The use of a (metal) salt of an alkylphosphonous acid prepared by a process ^{Claim 1} ~~as claimed in claims 1 to 14~~ for the preparation of flame retardants for thermoplastic polymers, such as polyethylene terephthalate, polybutylene terephthalate or polyamide.

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20 *A* 19. The use of a (metal) salt of an alkylphosphonous acid prepared by a process ^{Claim 1} ~~as claimed in claims 1 to 14~~ for the preparation of flame retardants for thermosetting resins, such as unsaturated polyester resins, epoxy resins, polyurethanes or acrylates.